RCS12-01 Hartley Lay Summary

Principle Investigator: Miss Alice Hartley, Newcastle University

Lay Title:

Characterising prostate cancer cells in blood

Scientific Title:

Characterisation of the prognostic role of embryonic stem cell marker expression in circulating tumour cells from patients with metastatic prostate cancer.

Summary

This project is funded in collaboration with the Royal College of Surgeons. It will provide funding for a medical doctor to begin working towards a PhD. There are a number of treatments available for advanced prostate cancer but some patients respond better than others. By identifying the features in a cancer that determine how well the tumour responds to a particular therapy, the researchers hope to develop a simple blood test to personalise patient treatment in the future.

Project description

The standard treatment for advanced prostate cancer is hormone therapy, but responses to this treatment can vary from person to person. Once prostate cancer stops responding to hormone therapy, it is difficult to treat. The ability to predict who is unlikely to respond well to hormone therapy would enable clinicians to monitor those patients closely and provide additional treatments as soon as they're needed. The researchers in this lab are hoping to develop a simple blood test that will tell us how aggressive a cancer is likely to be.

The researchers are focussing on cells that detach from the main body of the tumour in the prostate and circulate around the body in the blood. These cells are called circulating tumour cells (CTCs). The proteins that the researchers are interested in are called transcription factors. Transcription factors control the expression of other proteins in a cell and different ones are active at different points in a cell's life. The researchers have shown previously that transcription factors normally associated with embryonic development become reactivated in aggressive prostate cancer and that this is associated with poor survival. In this project they will be looking at whether the levels of certain transcription factors (called Oct4, Sox and Nanog) in CTCs can be used as a test to predict how aggressive a cancer is.

They also want to understand why it is that the presence of these transcription factors is associated with more aggressive cancer. So they will also be investigating what is happening inside the prostate cancer cells to reactivate the transcription factors, and why, once they are active, the cancer tends to be aggressive.